

REMARKS

Claims 1-12 are pending. Claims 3 and 5-12 have been canceled without prejudice or a disclaimer. Claims 1, 2, and 4 stand rejected. Claim 1 is an independent claim.

Claims 1 and 2 are amended to such that each claim recites the apparatus for drawing an optical fiber in structural language. Claim 1 and 2 are fully supported by the original claims 1-3.

Claim 1 is amended to recite that the “the control unit is configured to control the outer diameter of the optical fiber based on the calculated second preform speed.” The control unit of claim 1 is fully supported by FIG. 7 and by the specification at page 12, line 8 – page 13, line 17.

Claim 1 stands rejected under 35 U.S.C. §102(b) as allegedly being anticipated by Harding (U.S. 4,793,840).

Claim 1 recites an apparatus comprising

a control unit that includes a calculation unit, the calculation unit being... configured to **calculate a slope of the drawing speed during a previously arbitrary period of time** using the drawing speed signal; configured to **obtain an expected drawing speed** of a future arbitrary time period by using the calculated slope;... and configured to calculate a second preform feed speed based on the estimated compensation values,

wherein the control unit is configured to control the outer diameter of the optical fiber using the calculated second preform feed speed.

According to the United States Court of Appeals for the Federal Circuit, a claim is anticipated only if a single prior art reference **set forth each and every feature** recited in a claim (*Verdegaal Bros. v. Union Oil Co. of California*, 814 F.2d 628, 631, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987)).

In judging patentability of the claim against the prior art, “**[a]ll words in the claim must be considered**” (*In re Wilson*, 424 F.2d 1382, 1385, 165 USPQ 494 (CCPA 1970)). The Patent

Office cannot conclude that a particular term in the claim is indefinite or incomprehensible, **proceed as though the term is not in the claim**, and reject the entire claim **as being anticipated or obvious** (id.). If the term contained in the claim is indefinite or utterly incomprehensible, the claim must be rejected as being indefinite; however, the claim cannot be rejected as being anticipated or obvious over the prior art (id.).

The act of disregarding a feature is particularly prohibited if the feature is recited in the claim using the term “*adapted to*” or “*configured to*,” the term that **imparts structure** (see *In re Venezia*, 530 F.2d 956, 959, 189 USPQ2d 149 (CCPA 1976)). In addition, the rule proscribing the act of disregarding a feature extends to mathematical algorithms recited in an apparatus claim if the apparatus produces a “useful, concrete, and tangible result” using the algorithm (*State Street Bank & Trust Co. v. Signature Financial Group, Inc.*, 149 F.3d 1368, 47 USPQ2d 1596 (Fed. Cir. 1998)).

After considering all features of the claim, if the claimed apparatus differs from the prior art, the Patent Office may remedy the difference by relying on logic, sound scientific principle, or facts the Patent Office deems as being within “common knowledge” (MPEP 2144.02-2144.03). In doing so, the Patent Office, however, **must provide concrete documentary evidentiary support** for existence of the logic and scientific theory, and for concluding the facts as being within the “common knowledge” (*In re Soli*, 317 F.2d 941, 137 USPQ 797 (CCPA 1963); *In re Zurko*, 258 F.3d 1379, 1385, 59 USPQ2d 1693 (Fed. Cir. 2001); MPEP 2144.02-2144.03). **It is not pertinent that a formal Official Notice be taken by the Patent Office. As long as the Patent Office relies on facts outside of the record, the support must be provided** (MPEP 2143.02 (requiring evidentiary support even in the absence a formal Official Notice)).

In rejecting claim 1, the Patent Office raises three arguments. **First**, the Patent Office

indicates that the only difference between the apparatus of claim 1 and Harding is the algorithm and that the “[d]ifference that exists solely in the algorithms that may be utilized by a control apparatus do not constitute patentably distinct differences” (the present Office Action, page 5, paragraph 11). **Second**, the Patent Office indicates that **despite the fact that Harding does not teach an apparatus** that “[calculates] a speed relative to a change in time (acceleration) or [estimates] the speed in a subsequent period,” such differences do not render the apparatus of claim 1 patentable, as such features are merely functional (id. at page 3, paragraph 5).

Third, the Patent Office indicates that Harding is “capable of calculation beyond a simple setpoint comparison” (id. (citing to the rationale behind the rejection over claim 2 and 4)). As such, the Patent Office takes the position “that the apparatus of Harding [is] capable of performing all of the [] function[s]” of claim 1 (id. at page 5, paragraph 10). To support, the Patent Office **assumes, without providing sufficient evidence**, that some of the features of claim 1 are disclosed in Harding (id. at page 4, paragraph 7 (disclosing that the feature “using a calculated slope...” **are interpreted as being disclosed by** Harding)). In the process, the Patent Office makes a **circuitous argument** that Harding performs all functions of the apparatus of claim 1 because the Patent Office **assumes** that Harding performs all functions (id.).

The Applicant respectfully submits that the first and second arguments provided by the Patent Office do not support the present rejection, as claim 1 recites an apparatus that produces a “useful, concrete, and tangible result” of controlling the outer diameter of the optical fiber using the calculated second preform feed speed. In addition, claim 1, as amended, recites the calculation unit using the term “configured to,” the term that imparts structure to the calculation unit (see *In re Venezia*, 530 F.2d 956, 959, 189 USPQ2d 149 (CCPA 1976)). Accordingly, all features related to the calculation unit and the control unit have patentable weight.

The third argument also fails to support the present rejection. In particular, the apparatus of claim 1 comprises “the control unit [that] is configured to control the outer diameter of the optical fiber using the calculated second preform feed speed,” the second preform feed speed based on the calculated “slope of the drawing speed during a previously arbitrary period of time.”

The Applicant submits that Harding merely sets forth an optical fiber drawing apparatus configured to detect and calculate the deviation between the actual and predetermined fiber diameters (the “first deviation”) with its first control algorithm 24 (column 2, line 24-29 and 54-68); to detect and calculate the deviation between the actual and predetermined capstan speeds (the “second deviation”) with a second control algorithm 21 (column 3, line 1-17); and to compensate the first and the second deviations by controlling the capstan speed (column 2, line 54-68) and the optical fiber preform feed rate (column 3, line 1-17), respectively. Though the Office Action asserts that Harding is “capable of calculations beyond a simple setpoint comparison” as it detects the drawing speed for a length of time (the present Office Action, page 3, paragraph 4), Harding cannot possibly be “calculate a slope of the drawing speed,” as Harding is not configured to (1) measure the length of the time by which Harding detects the drawing speed, and (2) divide the value of the difference in the drawing speeds during the length of time by the value of the measured length of time.

As such, Harding is limited to an apparatus being configured to measure the first and second deviations. Nothing in Harding teaches that Harding is also configured to, among others, to calculate the “slope of the drawing speed during a previously arbitrary period of time,” or “to control the outer diameter of the optical fiber using the calculated second preform feed speed,” the second preform feed speed based on the calculated slope of the drawing speed. To

conclude otherwise, one must rely on facts that are not disclosed in Harding. If the Office Action relies on some facts outside of Harding, the Applicant respectfully requests concrete documentary evidentiary support, as required in the MPEP 2144.02-2144.03 (see also *In re Soli*, 317 F.2d 941).

Without evidentiary support outside of Harding, Harding is not configured to perform all functions of the calculation unit. In other words, Harding fails to sets forth or anticipates an apparatus comprising

a control unit that includes a calculation unit, the calculation unit being... configured to calculate a slope of the drawing speed during a previously arbitrary period of time using the drawing speed signal; configured to obtain an expected drawing speed of a future arbitrary time period by using the calculated slope;... and configured to calculate a second preform feed speed based on the estimated compensation values,

wherein the control unit is configured to control the outer diameter of the optical fiber using the calculated second preform feed speed,

as recited in claim 1.

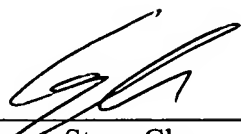
Based on foregoing, the Applicant respectfully submits that claim 1 is patentable over Harding. The Applicant respectfully requests withdrawal of the rejection.

Other claims in this application are each dependent on the independent claim 1 and believed patentable for the same reasons. Since each dependent claim is also deemed to define an additional aspect of the invention, however, individual consideration of the patentability of each on its own merits is respectfully requested.

Amendment
Serial No. 10/619,995

Should the Examiner deem that there are any issues which may be best resolved by telephone, please contact Applicant's undersigned representative at the number listed below.

Respectfully submitted,


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